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10/045,590	11/08/2001	Ian R. Davies	4430-30	8551

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EXAMINER

SALL, EL HADJI MALICK

ART UNIT PAPER NUMBER

2157

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,590

Applicant(s)

DAVIES ET AL.

Examiner

El Hadji M Sall

Art Unit

2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. **DETAILED ACTION**

This action is responsive to the application filed on November 8, 2001. Claims 1-42 are pending. Claims 1-20 represent Obtaining information to facilitate system usage.

2. ***Claim Objections***

Claim 16 and 17 are objected to because of the following informalities: Claims 16 and 17 depend on claims 13 (which depends on 1), and 1, which is a method. Claims 16 and 17 should read "the method" instead of "a method". Appropriate correction is required.

3. ***Claim Rejections - 35 USC § 102***

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-42 are rejected under 35 U.S.C. 102(e) as being unpatentable over Blumenau et al. (referred to hereafter as Blue) U.S. 6,260,120.

Blue teaches the invention as claimed including storage mapping and partitioning among multiple host processors in the presence of login state changes and host controller replacement (see abstract)

As to claim 1, Blue teaches a method for facilitating use of a system that includes at least one host and at least one controller, comprising:

conducting a bus scan at a first host for obtaining, by a first controller, first information for identifying said first host (column 2, lines 63-65, Blue discloses searching to find information identifying the host processor (i.e. bus scan for obtaining information "identifying the first host")); and

using said first information by said first controller in facilitating use of the system (column 2, lines 55-65, Blue discloses upon receiving a request for access from on of the host processor, the storage controller respond to the request for storage access by using the information identifying the host processor (this facilitates use of the system)).

As to claim 2, Blue teaches the method of claim 1, wherein said bus scan is also conducted for identifying a plurality of different components operatively attached to a bus of said first host (column 10, lines 50-54, Blue discloses the nodes has a number of entities which are identified by logical unit number).

As to claim 3, Blue teaches the method of claim 1, wherein said conducting step does not include activating a programmatic element, on said first host, for obtaining said first information, wherein said programmatic element is able to obtain said first information without activating a bus scan (column 10, lines 62-67, Blue discloses a host can use a "report LUNs" command to obtain a list of the logical volume to which the host is connected).

As to claim 4, Blue teaches the method of claim 1, wherein said conducting step includes transmitting said first information, including a world wide name for said first host, to said first controller via a fibre channel network (column 9, lines 38-43, Blue discloses in figure 1, the port adapters 35,36 can be programmed to communicate with the network via fibre channel; column 11, lines 14-18, Blue discloses each port of a fibre channel has a world wide name).

As to claim 5, Blue teaches the method of claim 1, wherein said conducting step includes receiving by said first controller said first information, including a world wide name for said first host via a communications network (column 9, lines 38-43, Blue discloses in figure 1, the port adapters 35,36 can be programmed to communicate with the network via any number of communication or network protocol).

As to claim 6, Blue teaches the method of claim 1, wherein said using step includes configuring said first controller so that said first host has access to said at least one logical storage unit (column 8, lines 24-29, Blue discloses a storage controller for controlling access of the hosts to the storage volumes).

As to claim 7, Blue teaches the method of claim 1, wherein said using step includes providing access to a predetermined data repository, wherein for each of a plurality of host components, said data repository includes corresponding identification data, wherein for at least most of said host components, said corresponding identification data is accessible independently of whether a host requesting access to said first storage controller includes said host component (column 37, lines 9-16, Blue discloses the host user selects a given storage subsystem adapter port WWN (WWN or World Wide Name is a unique identifier in a Fibre Channel storage network), and all the LUN bitmap entries and their corresponding volume group names are read from the storage subsystem volume configuration database (LUNs or Logical Unit Numbers are

addressed in conjunction with the *controller ID* of the host bus adapter, the *target ID* of the storage array, and an optional (and no longer common) *slice ID*)).

As to claim 8, Blue teaches the method of claim 7, wherein said predetermined data portion includes an identification of a manufacturer of a component of said first host (column 37, lines 9-10, Blue discloses a given storage subsystem adaptor port WWN (WWN or World Wide Name is assigned by the vendor at the time of manufacture)).

As to claim 9, Blue discloses the method of claim 8, wherein said component includes a host adapter (column 37, lines 9-10, Blue discloses a subsystem adaptor port).

As to claim 10, Blue discloses the method of claim 1, wherein said step of using includes presenting to an administrator host identifying data indicative of said first information, wherein said presenting of said host identifying data is distinguished from a presenting of other information for identifying at least a second host so that the administrator can identify said presentation of said host identifying data from said presentation of said other information for said second host by a display attribute that is substantially independent of a content of at least one of said host identifying data and said other information (column 15, lines 16-35, Blue discloses the administrator defines the host names, and the host names are also known to the hosts; column 32, lines 1-5, Blue discloses displaying attribute information such as WWN).

As to claim 11, Blue the method of claim 10, wherein said display attribute includes at least one of: a display order of said presentation of said host identifying data, a display location of said presentation of said host identifying data, and a display highlight or color of said presentation of said host identifying data (column 20, lines 50-61, Blue discloses the volume associated with a particular group could be displayed in a corresponding primary color).

As to claim 12, Blue teaches the method of claim 11, wherein said display order includes providing said presentation of said host identifying data before said presentation of said other information (column 30, lines 57-59, Blue discloses the display starts out with a list of storage subsystems and a list of hosts linked by the data network).

As to claim 13, Blue teaches the method of claim 1, wherein said step of using includes:

presenting, to an administrator of said first controller, host identifying data indicative of said first information (column 24, lines 60-67, Blue discloses the administrator assigned the virtual ports to the host, and the host must use this information to direct their storage access to the virtual ports);

receiving input from the administrator of separate information for identifying said first host (column 24, lines 60-67, Blue discloses the port assignment by the administrator (i.e. for identifying the hosts); and

at least one of: (a) displaying said separate information with at least a portion of said host identifying data and (b) displaying said separate information in place of at least a portion of said host identifying data (column 32, lines 1-5, Blue discloses displaying attribute information such as port WWN).

As to claim 14, Blue teaches the method of claim 13, wherein said separate information assists the administrator in identifying said first host (column 26, lines 34-36, Blue discloses separate tables are used because each host listed in the host table can have more than one assigned port (it is inherent that the administrator is assigning the port using the information in the tables)).

As to claim 15, Blue teaches the method of claim 13, wherein a presentation of said separate information includes at least one of: textual data representing said separate information, a hyperlink for said separate information, and a menu for

activating one or more tasks related to managing said logical storage units (column 36, line 66 - column 37, line 6, Blue discloses the host installation facility reads the storage subsystem port text names. If the port entries are zero, it means they have never been entered).

As to claim 16, Blue teaches the method of claim 13, further including:
using, by the administrator, said separate information for at least one of:
assigning, designing and changing access permissions to one or more logical storage units available to said first host (column 32, lines 25-33, Blue discloses additional facilities could be introduced for volume configuration and site management to permit involvement of the host in allocating logical storage volumes).

As to claim 17, Blue teaches a method of claim 1, wherein data storage is part of the system (figure 1, item 20).

As to claim 18, Blue teaches the method of claim 1, further including a step of obtaining a timestamp of when said first controller obtains said first information, wherein data indicative of said timestamp is available for presentation to an administrator of said first controller (column 39, lines 44-54, Blue discloses the time that a host controller is logged in to a port adaptor (by logging into the a port adaptor information or/and data is implicitly "presented to an administrator)).

As to claim 19, Blue teaches a method for facilitating use of a system that includes at least one host and at least one controller, comprising:

accessing, by a first controller, a network switch communicating with said first host for obtaining, by said first controller, first information for identifying said first host (figure 21, items 238 and 239; column 2, lines 63-65, Blue discloses searching to find information identifying the host processor (i.e. bus scan for obtaining information identifying the first host)); and

using said first information by said first controller in facilitating use of the system (column 2, lines 55-65, Blue discloses upon receiving a request for access from on of the host processor, the storage controller respond to the request for storage access by using the information identifying the host processor (this facilitates use of the system)).

As to claim 20, Blue teaches the method of claim 19, wherein said using step includes determining whether said first information is: available via said network switch without accessing said first host, and includes at least one predetermined data portion for identifying said first host (column 25, lines 30-33, Blue discloses requests from other nodes in the network are routed to them through their respective virtual switches).

As to claim 21, Blue teaches the method of claim 19, wherein said accessing step includes querying said network switch for said first information, wherein said first information includes at least one of: a network address for said first host and a network communications protocol used by said first host (column 32, lines 12-14, Blue teaches the storage subsystem can assign network addresses to virtual ports).

As to claim 22, Blue teaches the method of claim 19, wherein said network switch is a storage area network switch that includes a fibre channel switch (figure 21).

As to claim 23, Blue teaches the method of claim 22, wherein said querying step includes providing a world wide name for said first host to a database interface component of said fibre channel switch, wherein said world wide name is used for retrieving said first information (column 25, lines 28-49, Blue discloses the ports are assigned WWNs , the switch definition include the respective WWNs of the virtual switches, and the name servers can provide the respective WWNs (by having the WWNs, it is inherent it could be used to "retrieve information)).

As to claim 24, Blue teaches the method of claim 19, wherein said accessing step includes:

registering said first controller with said network switch (column 25, lines 21-23, Blue discloses there is a switch 238, 239 in the storage controller); and

subsequent to completion of said registering step, receiving, by said first controller, information related to said network switch that is being contacted by one or more hosts for requesting access to said first controller (figure 21; column 2, lines 55-57, Blue discloses receiving request for storage access).

As to claim 25, Blue teaches the method of claim 19, wherein said using step includes determining whether access to at least one of a plurality of logical storage units for said first host is to be granted (figure 33).

As to claim 26, Blue teaches an apparatus for facilitating use of a system that includes at least one controller that is accessible by one or more hosts, comprising: a controller that:

(a) includes a network interface for receiving network transmissions from each of the one or more hosts (figure 1, items 35 and 36);

(b) determines, for at least a first host of the one or more hosts, first host identifying first information from a first of said network transmissions when said first network transmission is a result of a bus scan on said first host (column 2, lines 63-65, Blue discloses searching to find information identifying the host processor (i.e. bus scan for obtaining information identifying the first host)); and

(c) sends first host identifying data indicative of said first information to an administration subsystem (column 10, lines 60-67, Blue discloses a host can send "Report LUNs" commands to each of each storage subsystem to which it is connected (LUNs are addressed in conjunction with controller ID of the host bust adapter, and the target ID of the storage array, therefor the controller implicitly "sends identifying data to a subsystem"))).

As to claim 27, Blue teaches the apparatus of claim 23, wherein said controller accesses a network switch, via a transmission on a network, for obtaining second information for identifying the first host, wherein said transmission is provided to the network by said network interface (figure 21).

As to claim 28, Blue teaches the apparatus of claim 27, wherein one or more of: (a) said first information includes a world wide name for the first host (column 9, lines 38-43, Blue discloses in figure 1, the port adapters 35,36 can be programmed to communicate with the network via fibre channel; column 11, lines 14-18, Blue discloses each port of a fibre channel has a world wide name); and

(b) said second information includes one or more of: an identification of a manufacturer of a component of the first host, a network address for the first host, a network communications protocol being used by the first host, and a make or model of a component of the first host (column 37, lines 9-10, Blue discloses a given storage subsystem adaptor port WWN (WWN or World Wide Name is assigned by the vendor at the time of manufacture)).

As to claim 29, Blue teaches the apparatus of claim 26, wherein said administration subsystem includes a host identification processing subsystem for presenting said first host identifying data to an administrator for said apparatus, wherein said presentation of said first host identifying data is distinguished from a presentation of other information for identifying at least a second host so that the administrator can identify said presentation of said first host identifying data from said presentation of said other information for the second host using a display attribute (column 15, lines 16-35, Blue discloses the administrator defines the host names, and the host names are also known to the hosts; column 32, lines 1-5, Blue discloses displaying attribute information such as WWN).

As to claim 30, Blue teaches the apparatus of claim 29, wherein said controller is accessed by the first host more recently than being accessed by the second host

(column 2, lines 46-49, Blue discloses the storage controller has at least one data port to connect to the data network (It is inherent that first host in the plurality of hosts could access "more recently" the controller than any second host)).

As to claim 31, Blue teaches the apparatus of claim 29, wherein said display attribute is substantially independent of content of said first host identifying data (column 20, lines 50-61, Blue discloses the volume associated with a particular group could be displayed in a corresponding primary color).

As to claim 32, Blue teaches the apparatus of claim 29, wherein said display attribute includes at least one of: a display order of said presentation of said first host identifying data, a display location of said presentation of said first host identifying data, and a display highlighting or color of said presentation of said first host identifying data (column 20, lines 50-61, Blue discloses the volume associated with a particular group could be displayed in a corresponding primary color).

As to claim 33, Blue teaches the apparatus of claim 32, wherein said display order includes providing said presentation of said first information before said presentation of said other information (column 30, lines 57-59, Blue discloses the display starts out with a list of storage subsystems and a list of hosts linked by the data network).

As to claim 34, Blue teaches the apparatus of claim 26, wherein said administration subsystem includes a host identification processing subsystem for:

(a) presenting, to an administrator of said apparatus, via a display device, said first host identifying data (column 24, lines 60-67, Blue discloses the port assignment by the administrator (i.e. for identifying the hosts);

(b) receiving input, from the administrator, of third information for identifying the first host (column 24, lines 60-67, Blue discloses the port assignment by the administrator (i.e. for identifying the hosts); and

(c) at least one of: (a) displaying said third information, via the display device, with at least a portion of said first host identifying data, (b) displaying said third information, via the display device, in place of at least a portion of said first host identifying data, and (c) using, by the administrator, said third information for one or more of: assigning, designing and changing access permissions to one or more logical storage units to the first host (column 32, lines 25-33, Blue discloses additional facilities could be introduced for volume configuration and site management to permit involvement of the host in allocating logical storage volumes).

As to claim 35, Blue teaches the apparatus of claim 34, wherein a presentation of said third information, via the display device, includes at least one of: textual data representing said third information, a hyperlink for said third information, and a menu for activating one or more tasks related to managing said logical storage units (column 36, line 66 - column 37, line 6, Blue discloses the host installation facility reads the storage subsystem port text names. If the port entries are zero, it means they have never been entered).

As to claim 36, Blue teaches the apparatus of claim 26, wherein said controller accesses a data repository including identification data for identifying at least one component of the first host, and said identification data is accessible from said data repository independently of a request for access to said controller by the first host (column 37, lines 9-16, Blue discloses the host user selects a given storage subsystem adapter port WWN (WWN or World Wide Name is a unique identifier in a Fibre Channel storage network), and all the LUN bitmap entries and their corresponding volume group names are read from the storage subsystem volume configuration database (LUNs or Logical Unit Numbers are addressed in conjunction

with the *controller ID* of the host bus adapter, the *target ID* of the storage array, and an optional (and no longer common) *slice ID*)).

As to claim 37, Blue teaches the apparatus of claim 26, further including a data store for storing data that includes at least a first data storage portion having an identifier known to at least the first host when the first host has access to said first data storage portion (figure 1, item 20).

As to claim 38, Blue teaches an apparatus for facilitating use of a system that includes at least one controller that is accessible by one or more hosts, comprising: a controller that:

(a) includes a network interface for receiving network transmission from each of the one or more hosts (figure 1, items 35 and 36);

(b) accesses a network switch, via a transmission on a network, for obtaining first information for identifying the first host, wherein said transmission is provided to the network by said network interface (figure 21, items 238 and 239; column 2, lines 63-65, Blue discloses searching to find information identifying the host processor (i.e. bus scan forobtaining information identifying the first host)); and

(c) communicates with an administration subsystem related to said first information (column 10, lines 60-67, Blue discloses a host can send "Report LUNs" commands to each of each storage subsystem to which it is connected (LUNs are addressed in conjunction with controller ID of the host bust adapter, and the target ID of the storage array, therefor the controller implicitly "sends identifying data to a subsystem"))).

As to claim 39, Blue teaches the apparatus of claim 38, wherein said controller determines, for at least the first host, second information for identifying the first host from a bus scan on the first host (column 2, lines 63-65, Blue discloses searching to find information identifying the host processor (i.e. bus scan forobtaining information identifying the first host)).

As to claim 40, Blue teaches the apparatus of claim 39, wherein said first information includes one or more of: an identification of a manufacturer of a component of the first host, a network address for the first host, a network communications protocol being used by the first host, and a make or model of a component of the first host and said second information includes a world wide name for the first host (column 37, lines 9-10, Blue discloses a given storage subsystem adaptor port WWN (WWN or World Wide Name is assigned by the vendor at the time of manufacture)).

As to claim 41, Blue teaches the apparatus of claim 39, wherein said administration subsystem presents first host identifying data indicative of said second information that is distinguished from a presentation of other information for identifying at least a second host using a display attribute (column 15, lines 16-35, Blue discloses the administrator defines the host names; and the host names are also known to the hosts; column 32, lines 1-5, Blue discloses displaying attribute information such as WWN).

As to claim 42, Blue teaches the apparatus of claim 41, wherein said display attribute includes at least one of: a display order related to said first host identifying data, a display location related to said first host identifying data and a display highlighting or color related to said first host identifying data (column 20, lines 50-61, Blue discloses the volume associated with a particular group could be displayed in a corresponding primary color).

5. Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to El Hadji M Sall whose telephone number is 571-272-4010. The examiner can normally be reached on 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-4010.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

El Hadji Sall
Patent Examiner
Art Unit: 2157



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